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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,280	02/13/2001	Hiroshi Ohta	OSP-10401	9444

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EXAMINER

LE, BRIAN Q

ART UNIT PAPER NUMBER

2623

DATE MAILED: 03/22/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/781,280

Applicant(s)

OHTA, HIROSHI

Examiner

Brian Q Le

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 14-20 and 22-25 is/are rejected.
- 7) ☒ Claim(s) 6-13 and 21 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Drawings

1. Figure 15 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. The claims 4, 15-17, 19, and 22-24 are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

4. The claim 4 recites “ an incorrect outline extraction” limitation is not well written so that one skilled in the art can understand clearly. Appropriate correction is required.

5. The claim 15 recites “the initial calculation parameter”, one skilled in the does not understand where the initial calculation parameter was generated.

6. The claim 19 recites “ the finding of edge part of the object” limitation is not well written so that one skilled in the art can understand clearly.

7. Also claims 22-24 are not well written so that one skilled in the art can understand clearly.

Claims not specially addressed depend from indefinite antecedent claims.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 3, 5, 14-18, 20 and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomita U.S. Patent No. 5,202,928.

Regarding claim 1, Tomita teaches an object extraction device comprising:

A first object extraction calculating device that finds the object extraction image (FIG. 3, S4) (the image region extraction of the targeting object) (abstract) by carrying out object extraction calculations for extraction an object by using a predetermined first calculation parameter on a plurality of photographed images having predetermined first calculation parameter (dk and dj both are predetermined disparity value) (column 4, lines 57-60) on a plurality of photographed images having a parallax with respect to the same object (FIG. 2); and

An incorrect outline extraction processing device (removing imaginary segment which is incorrect outline extraction) (FIG. 3, S9) that extracts an outline from an object extraction image found by said first object extraction calculating device and extracts as an incorrect outline a straight line segment having a length exceeding a predetermined threshold value within the extracted outline (column 4, lines 55-61).

Referring to claim 2, Tomita also teaches an object extraction device wherein said incorrect outline extraction processing (as discussed in claim 1) device comprises:

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An outline extraction device that extracts an outline from an object extraction image found by said object extraction calculating device (FIG. 4a and FIG. 5);

An edge pixel calculating device (abstract) that finds the edge part of the object (FIG. 17a and FIG. 17b) from a predetermined photographed image from among said plurality of photographed images (FIG. 3, S3); and

An incorrect outline extraction device (as discussed in claim 1) that extracts as an incorrect outline the straight line segment within the outline extracted by said outline extraction device that is the outline part that does not include the edge part (just on the edge) (column 5, lines 47-55) found by said edge pixel calculating device (FIG. 4a, 4b and 5) and has a length exceeding a predetermined value (column 4, lines 55-61).

Regarding claim 3, please refer back to claim 2 for the explanation.

For claim 5, Tomita discloses an object extraction wherein said straight line segment is a straight line segment along the scanning direction of said predetermined photographed image (FIG. 4b).

Regarding claim 14, Tomita also discloses an object extraction device wherein said plurality of photographed images are photographed by a plurality of cameras that photograph the same object from different directions (FIG. 2 and column 3, lines 23-35).

For claim 15, Tomita further discloses an object extraction device comprising an object extraction calculating device that repeats the object extraction calculation for eliminating an incorrect outline (as discussed in claim 1) from a predetermined partial region (region extraction) (FIG. 3, S4) on the plurality of photographed images (FIG. 3, S2) having parallax with respect to the same object (FIG. 2) using a predetermined calculation parameter that is different from the

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initial calculation parameter (FIG. 2), and finds the re-extracted image, which is the object extraction image of this partial region (extracting the real surface is the re-extracted image after the region extraction) (FIG. 3, element 11).

Referring to claim 16, Tomita teaches an object calculating device (abstract) wherein said partial region is a region that includes the outline part determined to be an incorrect outline within the image region of the object extraction image found by carrying out of the object extraction calculation for extraction the object (FIG. 4a, 4b, 5 and 9) using said initial calculation parameter (column 4, lines 55-60 and column 8, lines 15-25).

Regarding claim 17, Tomita further teaches an object extraction device comprising an image reconstructing device that reconstructs the object extraction image (the reconstruction of image is the television which display all the result after processing by converting analog signal to digital data and display) by exchanging the image of said partial region within the object extraction image found by the object extraction calculation(column 3, lines 20-60) using said initial calculation parameter and the re-extracted image (as discussed in claim 15).

For claim 18, please refer back to claims 1, 2, and 15 for further explanation.

For claim 20, please refer back to claim 1 for the explanation.

For claim 23, please refer back to claims 1 and 15 respectively for further explanation.

For claim 24, please refer back to claim 16 for further explanation.

For claim 25, please refer back to claim 17 for further explanation.

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Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 4, 19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita U.S. Patent No. 5,202,928 as applied to claim 1 above, and further in view of Sumi U.S. Patent No. 5,845,006.

For claim 4, as discussed in claims 2 and 3, Tomita further teaches the straight line segment that is the outline part that intersects said edge part found by the edge pixel calculating device (column 5, lines 34-36 and column 8, lines 6-13). However, Tomita does not clearly teach the concept of second threshold and the straight line segment exceeding the second threshold value. Sumi teaches a method of extracting object that extracting edges of the object (abstract) wherein vectors (vectors include magnitude/length and direction) exceeding threshold values (column 3, lines 50-65).

For claim 19, please refer back to claim 4 for the explanation.

Regarding claim 22, please refer back to claims 1 and 4 respectively for further explanation.

Allowable Subject Matter

12. Claims 6-13, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

CONCLUSION

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to object extraction, edge pixel calculating, stereoscope and photographed images having a parallax with respect to the same object:

U.S. Pat. No. 6,480,620 to Sakamoto, teaches method of and an apparatus for 3-dimensional structure estimation.

U.S. Pat. No. 6,483,949 to Yokoyama, teaches image processing apparatus for stereoscopic concepts.

U.S. Pat. No. 5,604,822 to Pearson, teaches methods for centroid based object segmentation in object recognition.

U.S. Pat. No. 6,034,759 to Enomoto, teaches image processing apparatus and photographic printing.

U.S. Pat. No. 6,674,905 to Matsugu, teaches object extraction method.

U.S. Pat. No. 6,493,465 to Mori, teaches matching point extracting method.

U.S. Pat. No. 5,995,649 to Marugame, teaches dual-input image processor for recognizing, isolating, and displaying specific objects from the input images.

U.S. Pat. No. 5,819,016 to Watanabe, teaches modeling three dimensional information.

U.S. Pat. No. 5,825,915 to Michimoto, teaches object detecting in which the position of a planar object is estimated by using Hough Transform.

U.S. Pat. No. 6,262,694 to Ishimoto, teaches image display.

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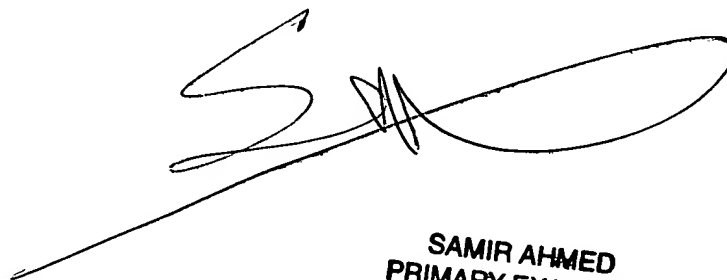
Harpreeel S. Sawhney, "simplifying motion and structure analysis using planar parallax and image warping", IEEE 1994. pages 403-408 vol. 1.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q Le whose telephone number is 703-305-5083. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC Customer Service whose telephone number is 703-306-0377.

BL
March 17, 2004

A handwritten signature in black ink, consisting of a large, stylized 'S' followed by a series of loops and a final horizontal stroke.

**SAMIR AHMED
PRIMARY EXAMINER**